

Nearburg Producing Co.

Project: Eddy County, NM (NAD83 NME) (10)

Well: Cottonwood North 20 State #1H

Wellbore: Lateral #1

Design: Design #1

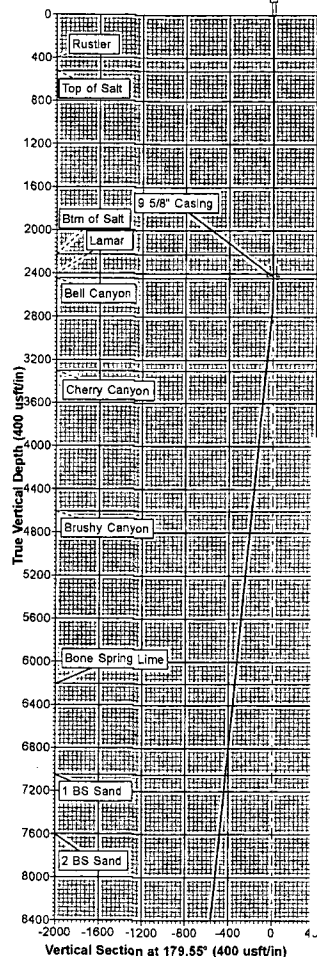
30-015-43266

M3P
DIRECTIONAL
SERVICES



Azimuths to Grid North
True North: -0.12°
Magnetic North: 7.20°

Magnetic Field
Strength: 48035.1 nT
Dip Angle: 59.82°
Date: 7/28/2015
Model: IGRF2010

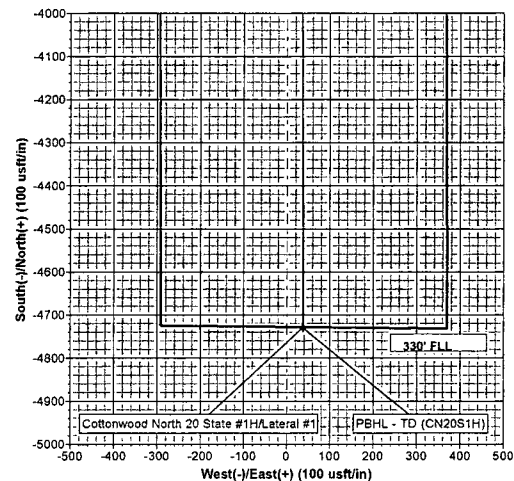
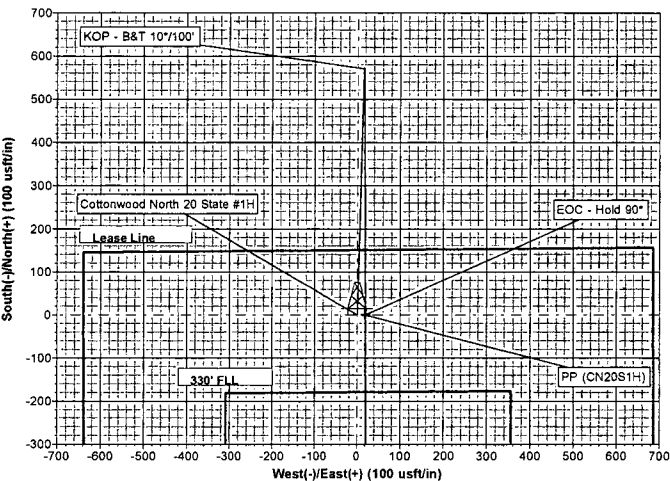


WELL DETAILS						
	+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
	0.00	0.00	376452.00	3077.00 608669.90	32° 2' 5.137 N	104° 6' 57.751 W

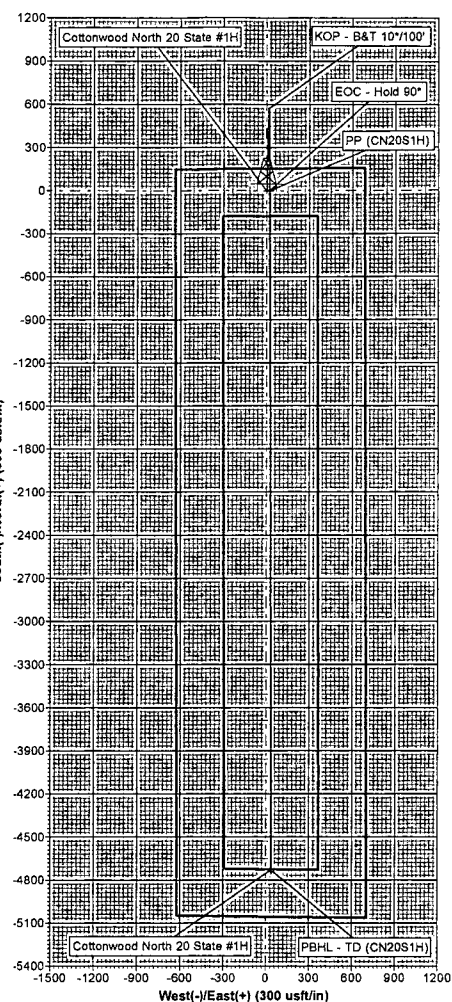
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2427.00	0.00	0.00	2427.00	0.00	0.00	0.00	0.00	0.00		
3	2527.00	0.00	0.00	2527.00	0.00	0.00	0.00	0.00	0.00		
4	2807.58	5.61	1.60	2807.23	13.73	0.38	2.00	1.60	-13.73		KOP - Build 2°/100'
5	8500.78	5.61	1.60	8473.03	570.40	15.64	0.00	0.00	-570.26		Hold 5.61°
6	9458.89	90.00	179.79	9102.00	0.20	20.00	10.00	178.18	-0.04	PP (CN20S1H)	KOP - B&T 10°/100'
7	14168.22	90.00	179.79	9102.00	-4729.10	37.50	0.00	0.00	4729.25	PBHL - TD (CN20S1H)	EOC - Hold 90°

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL - TD (CN20S1H)	9102.00	-4729.10	37.50	371722.90	608707.40	32° 1' 18.336 N	104° 6' 57.426 W	Point	
PP (CN20S1H)	9102.00	0.20	20.00	376452.20	608688.90	32° 2' 5.139 N	104° 6' 57.518 W	Point	

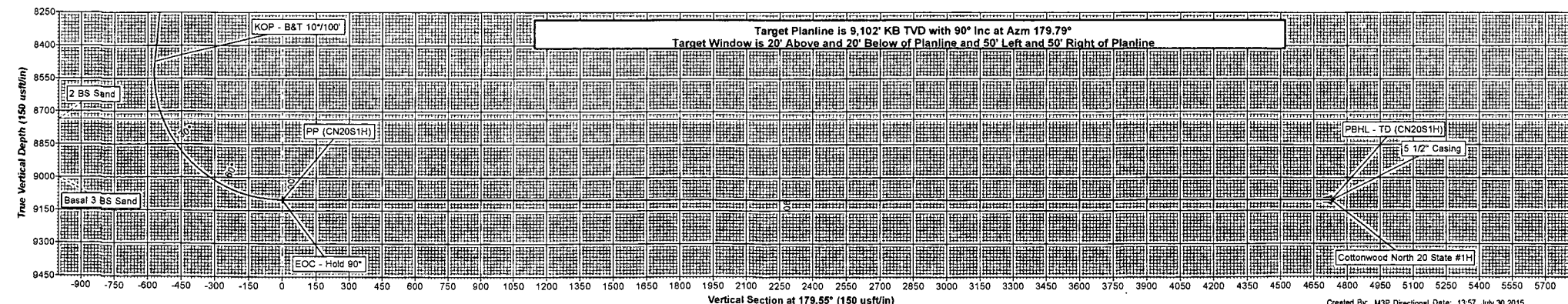
Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone
Local Origin: Site Cottonwood North 20 State #1H, Grid North
Latitude: 32° 2' 5.137 N
Longitude: 104° 6' 57.751 W
Grid East: 608669.90
Grid North: 376452.00
Scale Factor: 1.000
Geomagnetic Model: IGRF2010
Sample Date: 28-Jul-15
Magnetic Declination: 7.32°
Dip Angle from Horizontal: 59.82°
Magnetic Field Strength: 48035
To convert a Magnetic Direction to a Grid Direction, Add 7.20°
To convert a Magnetic Direction to a True Direction, Add 7.32° East
To convert a True Direction to a Grid Direction, Subtract 0.12°



South(-)/North(+) (300 usft/in)



LEGEND
— Design #1



Vertical Section at 179.55° (150 usft/in)

Created By: M3P Directional Date: 13:57, July 30 2015

NM OIL CONSERVATION

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AUG 13 2015

RECEIVED

Nearburg Producing Co.

Eddy County, NM (NAD83 NME) (10)

Cottonwood North 20 State #1H

Cottonwood North 20 State #1H

Lateral #1

Plan: Design #1

Standard Planning Report

29 July, 2015

M3P
DIRECTIONAL
SERVICES

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State #1H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3097.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3097.00usft (Original Well Elev)
Site:	Cottonwood North 20 State #1H	North Reference:	Grid
Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Project	Eddy County, NM (NAD83 NME) (10)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cottonwood North 20 State #1H, Sec 20, T-26S, R-28E		
Site Position:	Northings:	376,452.00 usft	Latitude: 32° 2' 5.137 N
From: Map	Easting:	608,669.90 usft	Longitude: 104° 6' 57.751 W
Position Uncertainty:	0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.12 °

Well	Cottonwood North 20 State #1H		
Well Position	+N/-S	0.00 usft	Northings: 376,452.00 usft
	+E/-W	0.00 usft	Easting: 608,669.90 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,097.00 usft
		Ground Level:	3,077.00 usft

Wellbore:	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/28/2015	7.32	59.82	48,035

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.55

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,427.00	0.00	0.00	2,427.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,527.00	0.00	0.00	2,527.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,807.68	5.61	1.60	2,807.23	13.73	0.38	2.00	2.00	0.00	1.60	
8,500.78	5.61	1.60	8,473.03	570.40	15.94	0.00	0.00	0.00	0.00	
9,456.89	90.00	179.79	9,102.00	0.20	20.00	10.00	8.83	18.64	178.18	PP (CN20S1H)
14,186.22	90.00	179.79	9,102.00	-4,729.10	37.50	0.00	0.00	0.00	0.00	PBHL - TD (CN20S1H)

M3P Directional Services

Planning Report



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Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3097.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3097.00usft (Original Well Elev)
Site:	Cottonwood North 20 State #1H	North Reference:	Grid
Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
402.00	0.00	0.00	402.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler										
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
527.00	0.00	0.00	527.00	0.00	0.00	0.00	0.00	0.00	0.00	
Top of Salt										
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,227.00	0.00	0.00	2,227.00	0.00	0.00	0.00	0.00	0.00	0.00	
Btm of Salt										
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,407.00	0.00	0.00	2,407.00	0.00	0.00	0.00	0.00	0.00	0.00	
Lamar										
2,427.00	0.00	0.00	2,427.00	0.00	0.00	0.00	0.00	0.00	0.00	
9 5/8" Casing										
2,447.00	0.00	0.00	2,447.00	0.00	0.00	0.00	0.00	0.00	0.00	
Bell Canyon										
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,527.00	0.00	0.00	2,527.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 2"/100'										
2,600.00	1.46	1.60	2,599.99	0.93	0.03	-0.93	2.00	2.00	0.00	
2,700.00	3.46	1.60	2,699.89	5.22	0.15	-5.22	2.00	2.00	0.00	
2,807.68	5.61	1.60	2,807.23	13.73	0.38	-13.73	2.00	2.00	0.00	
Hold 5.61°										
2,900.00	5.61	1.60	2,899.11	22.76	0.64	-22.75	0.00	0.00	0.00	
3,000.00	5.61	1.60	2,998.63	32.54	0.91	-32.53	0.00	0.00	0.00	
3,100.00	5.61	1.60	3,098.15	42.32	1.18	-42.31	0.00	0.00	0.00	
3,200.00	5.61	1.60	3,197.67	52.09	1.46	-52.08	0.00	0.00	0.00	
3,300.00	5.61	1.60	3,297.19	61.87	1.73	-61.86	0.00	0.00	0.00	
3,309.86	5.61	1.60	3,307.00	62.84	1.76	-62.82	0.00	0.00	0.00	
Cherry Canyon										
3,400.00	5.61	1.60	3,396.71	71.65	2.00	-71.63	0.00	0.00	0.00	
3,500.00	5.61	1.60	3,496.23	81.43	2.27	-81.41	0.00	0.00	0.00	

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State #1H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3097.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3097.00usft (Original Well Elev)
Site:	Cottonwood North 20 State #1H	North Reference:	Grid
Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,600.00	5.61	1.60	3,595.75	91.21	2.55	-91.18	0.00	0.00	0.00
3,700.00	5.61	1.60	3,695.27	100.98	2.82	-100.96	0.00	0.00	0.00
3,800.00	5.61	1.60	3,794.79	110.76	3.09	-110.73	0.00	0.00	0.00
3,900.00	5.61	1.60	3,894.31	120.54	3.37	-120.51	0.00	0.00	0.00
4,000.00	5.61	1.60	3,993.83	130.32	3.64	-130.29	0.00	0.00	0.00
4,100.00	5.61	1.60	4,093.35	140.10	3.91	-140.06	0.00	0.00	0.00
4,200.00	5.61	1.60	4,192.87	149.87	4.19	-149.84	0.00	0.00	0.00
4,300.00	5.61	1.60	4,292.39	159.65	4.46	-159.61	0.00	0.00	0.00
4,400.00	5.61	1.60	4,391.92	169.43	4.73	-169.39	0.00	0.00	0.00
4,500.00	5.61	1.60	4,491.44	179.21	5.01	-179.16	0.00	0.00	0.00
4,600.00	5.61	1.60	4,590.96	188.99	5.28	-188.94	0.00	0.00	0.00
4,616.12	5.61	1.60	4,607.00	190.56	5.32	-190.51	0.00	0.00	0.00
Brushy Canyon									
4,700.00	5.61	1.60	4,690.48	198.76	5.55	-198.71	0.00	0.00	0.00
4,800.00	5.61	1.60	4,790.00	208.54	5.83	-208.49	0.00	0.00	0.00
4,900.00	5.61	1.60	4,889.52	218.32	6.10	-218.26	0.00	0.00	0.00
5,000.00	5.61	1.60	4,989.04	228.10	6.37	-228.04	0.00	0.00	0.00
5,100.00	5.61	1.60	5,088.56	237.88	6.65	-237.82	0.00	0.00	0.00
5,200.00	5.61	1.60	5,188.08	247.65	6.92	-247.59	0.00	0.00	0.00
5,300.00	5.61	1.60	5,287.60	257.43	7.19	-257.37	0.00	0.00	0.00
5,400.00	5.61	1.60	5,387.12	267.21	7.46	-267.14	0.00	0.00	0.00
5,500.00	5.61	1.60	5,486.64	276.99	7.74	-276.92	0.00	0.00	0.00
5,600.00	5.61	1.60	5,586.16	286.77	8.01	-286.69	0.00	0.00	0.00
5,700.00	5.61	1.60	5,685.68	296.54	8.28	-296.47	0.00	0.00	0.00
5,800.00	5.61	1.60	5,785.20	306.32	8.56	-306.24	0.00	0.00	0.00
5,900.00	5.61	1.60	5,884.72	316.10	8.83	-316.02	0.00	0.00	0.00
6,000.00	5.61	1.60	5,984.24	325.88	9.10	-325.80	0.00	0.00	0.00
6,100.00	5.61	1.60	6,083.76	335.65	9.38	-335.57	0.00	0.00	0.00
6,200.00	5.61	1.60	6,183.28	345.43	9.65	-345.35	0.00	0.00	0.00
6,223.83	5.61	1.60	6,207.00	347.76	9.72	-347.68	0.00	0.00	0.00
Bone Spring Lime									
6,300.00	5.61	1.60	6,282.80	355.21	9.92	-355.12	0.00	0.00	0.00
6,400.00	5.61	1.60	6,382.32	364.99	10.20	-364.90	0.00	0.00	0.00
6,500.00	5.61	1.60	6,481.84	374.77	10.47	-374.67	0.00	0.00	0.00
6,600.00	5.61	1.60	6,581.36	384.54	10.74	-384.45	0.00	0.00	0.00
6,700.00	5.61	1.60	6,680.89	394.32	11.02	-394.22	0.00	0.00	0.00
6,800.00	5.61	1.60	6,780.41	404.10	11.29	-404.00	0.00	0.00	0.00
6,900.00	5.61	1.60	6,879.93	413.88	11.56	-413.77	0.00	0.00	0.00
7,000.00	5.61	1.60	6,979.45	423.66	11.84	-423.55	0.00	0.00	0.00
7,072.90	5.61	1.60	7,052.00	430.78	12.03	-430.68	0.00	0.00	0.00
1 BS Sand									
7,100.00	5.61	1.60	7,078.97	433.43	12.11	-433.33	0.00	0.00	0.00
7,200.00	5.61	1.60	7,178.49	443.21	12.38	-443.10	0.00	0.00	0.00
7,300.00	5.61	1.60	7,278.01	452.99	12.65	-452.88	0.00	0.00	0.00
7,400.00	5.61	1.60	7,377.53	462.77	12.93	-462.65	0.00	0.00	0.00
7,500.00	5.61	1.60	7,477.05	472.55	13.20	-472.43	0.00	0.00	0.00
7,600.00	5.61	1.60	7,576.57	482.32	13.47	-482.20	0.00	0.00	0.00
7,625.55	5.61	1.60	7,602.00	484.82	13.54	-484.70	0.00	0.00	0.00
2 BS Sand									
7,700.00	5.61	1.60	7,676.09	492.10	13.75	-491.98	0.00	0.00	0.00
7,800.00	5.61	1.60	7,775.61	501.88	14.02	-501.75	0.00	0.00	0.00
7,900.00	5.61	1.60	7,875.13	511.66	14.29	-511.53	0.00	0.00	0.00
8,000.00	5.61	1.60	7,974.65	521.44	14.57	-521.31	0.00	0.00	0.00

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Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,100.00	5.61	1.60	8,074.17	531.21	14.84	-531.08	0.00	0.00	0.00
8,200.00	5.61	1.60	8,173.69	540.99	15.11	-540.86	0.00	0.00	0.00
8,300.00	5.61	1.60	8,273.21	550.77	15.39	-550.63	0.00	0.00	0.00
8,400.00	5.61	1.60	8,372.73	560.55	15.66	-560.41	0.00	0.00	0.00
8,500.78	5.61	1.60	8,473.03	570.40	15.94	-570.26	0.00	0.00	0.00
KOP - B&T 10°/100'									
8,550.00	0.71	14.29	8,522.16	573.11	16.08	-572.96	10.00	-9.96	25.78
8,600.00	4.32	177.43	8,572.12	571.53	16.24	-571.38	10.00	7.21	326.28
8,650.00	9.31	178.70	8,621.75	565.60	16.42	-565.45	10.00	10.00	2.55
8,700.00	14.31	179.09	8,670.68	555.37	16.60	-555.22	10.00	10.00	0.78
8,750.00	19.31	179.28	8,718.52	540.91	16.81	-540.76	10.00	10.00	0.38
8,769.70	21.28	179.33	8,737.00	534.08	16.89	-533.93	10.00	10.00	0.26
2 BS Sand									
8,800.00	24.31	179.39	8,764.93	522.34	17.02	-522.19	10.00	10.00	0.21
8,850.00	29.31	179.47	8,809.54	499.80	17.24	-499.65	10.00	10.00	0.15
8,900.00	34.31	179.53	8,852.01	473.45	17.47	-473.30	10.00	10.00	0.11
8,950.00	39.31	179.57	8,892.03	443.50	17.71	-443.35	10.00	10.00	0.09
9,000.00	44.31	179.61	8,929.29	410.18	17.95	-410.02	10.00	10.00	0.07
9,050.00	49.31	179.63	8,963.50	373.73	18.19	-373.58	10.00	10.00	0.06
9,100.00	54.31	179.66	8,994.40	334.45	18.43	-334.29	10.00	10.00	0.05
9,113.24	55.64	179.67	9,002.00	323.60	18.49	-323.45	10.00	10.00	0.05
Basal 3 BS Sand									
9,150.00	59.31	179.68	9,021.76	292.62	18.67	-292.46	10.00	10.00	0.04
9,200.00	64.31	179.70	9,045.37	248.56	18.90	-248.41	10.00	10.00	0.04
9,250.00	69.31	179.72	9,065.05	202.62	19.14	-202.46	10.00	10.00	0.04
9,300.00	74.31	179.74	9,080.66	155.13	19.36	-154.97	10.00	10.00	0.03
9,350.00	79.31	179.75	9,092.06	106.47	19.58	-106.31	10.00	10.00	0.03
9,400.00	84.31	179.77	9,099.18	56.99	19.78	-56.83	10.00	10.00	0.03
9,450.00	89.31	179.79	9,101.96	7.09	19.97	-6.93	10.00	10.00	0.03
9,456.89	90.00	179.79	9,102.00	0.20	20.00	-0.04	9.99	9.99	0.03
EOC - Hold 90° - PP (CN20S1H)									
9,500.00	90.00	179.79	9,102.00	-42.91	20.16	43.07	0.00	0.00	0.00
9,600.00	90.00	179.79	9,102.00	-142.91	20.53	143.07	0.00	0.00	0.00
9,700.00	90.00	179.79	9,102.00	-242.91	20.90	243.07	0.00	0.00	0.00
9,800.00	90.00	179.79	9,102.00	-342.91	21.27	343.07	0.00	0.00	0.00
9,900.00	90.00	179.79	9,102.00	-442.91	21.64	443.07	0.00	0.00	0.00
10,000.00	90.00	179.79	9,102.00	-542.91	22.01	543.07	0.00	0.00	0.00
10,100.00	90.00	179.79	9,102.00	-642.91	22.38	643.07	0.00	0.00	0.00
10,200.00	90.00	179.79	9,102.00	-742.91	22.75	743.06	0.00	0.00	0.00
10,300.00	90.00	179.79	9,102.00	-842.91	23.12	843.06	0.00	0.00	0.00
10,400.00	90.00	179.79	9,102.00	-942.91	23.49	943.06	0.00	0.00	0.00
10,500.00	90.00	179.79	9,102.00	-1,042.91	23.86	1,043.06	0.00	0.00	0.00
10,600.00	90.00	179.79	9,102.00	-1,142.91	24.23	1,143.06	0.00	0.00	0.00
10,700.00	90.00	179.79	9,102.00	-1,242.91	24.60	1,243.06	0.00	0.00	0.00
10,800.00	90.00	179.79	9,102.00	-1,342.91	24.97	1,343.06	0.00	0.00	0.00
10,900.00	90.00	179.79	9,102.00	-1,442.90	25.34	1,443.06	0.00	0.00	0.00
11,000.00	90.00	179.79	9,102.00	-1,542.90	25.71	1,543.06	0.00	0.00	0.00
11,100.00	90.00	179.79	9,102.00	-1,642.90	26.08	1,643.06	0.00	0.00	0.00
11,200.00	90.00	179.79	9,102.00	-1,742.90	26.45	1,743.06	0.00	0.00	0.00
11,300.00	90.00	179.79	9,102.00	-1,842.90	26.82	1,843.06	0.00	0.00	0.00
11,400.00	90.00	179.79	9,102.00	-1,942.90	27.19	1,943.05	0.00	0.00	0.00
11,500.00	90.00	179.79	9,102.00	-2,042.90	27.56	2,043.05	0.00	0.00	0.00
11,600.00	90.00	179.79	9,102.00	-2,142.90	27.93	2,143.05	0.00	0.00	0.00

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State #1H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3097.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3097.00usft (Original Well Elev)
Site:	Cottonwood North 20 State #1H	North Reference:	Grid
Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,700.00	90.00	179.79	9,102.00	-2,242.90	28.30	2,243.05	0.00	0.00	0.00	
11,800.00	90.00	179.79	9,102.00	-2,342.90	28.67	2,343.05	0.00	0.00	0.00	
11,900.00	90.00	179.79	9,102.00	-2,442.90	29.04	2,443.05	0.00	0.00	0.00	
12,000.00	90.00	179.79	9,102.00	-2,542.90	29.41	2,543.05	0.00	0.00	0.00	
12,100.00	90.00	179.79	9,102.00	-2,642.90	29.78	2,643.05	0.00	0.00	0.00	
12,200.00	90.00	179.79	9,102.00	-2,742.90	30.15	2,743.05	0.00	0.00	0.00	
12,300.00	90.00	179.79	9,102.00	-2,842.89	30.52	2,843.05	0.00	0.00	0.00	
12,400.00	90.00	179.79	9,102.00	-2,942.89	30.89	2,943.05	0.00	0.00	0.00	
12,500.00	90.00	179.79	9,102.00	-3,042.89	31.26	3,043.05	0.00	0.00	0.00	
12,600.00	90.00	179.79	9,102.00	-3,142.89	31.63	3,143.04	0.00	0.00	0.00	
12,700.00	90.00	179.79	9,102.00	-3,242.89	32.00	3,243.04	0.00	0.00	0.00	
12,800.00	90.00	179.79	9,102.00	-3,342.89	32.37	3,343.04	0.00	0.00	0.00	
12,900.00	90.00	179.79	9,102.00	-3,442.89	32.74	3,443.04	0.00	0.00	0.00	
13,000.00	90.00	179.79	9,102.00	-3,542.89	33.11	3,543.04	0.00	0.00	0.00	
13,100.00	90.00	179.79	9,102.00	-3,642.89	33.48	3,643.04	0.00	0.00	0.00	
13,200.00	90.00	179.79	9,102.00	-3,742.89	33.85	3,743.04	0.00	0.00	0.00	
13,300.00	90.00	179.79	9,102.00	-3,842.89	34.22	3,843.04	0.00	0.00	0.00	
13,400.00	90.00	179.79	9,102.00	-3,942.89	34.59	3,943.04	0.00	0.00	0.00	
13,500.00	90.00	179.79	9,102.00	-4,042.89	34.96	4,043.04	0.00	0.00	0.00	
13,600.00	90.00	179.79	9,102.00	-4,142.89	35.33	4,143.04	0.00	0.00	0.00	
13,700.00	90.00	179.79	9,102.00	-4,242.89	35.70	4,243.03	0.00	0.00	0.00	
13,800.00	90.00	179.79	9,102.00	-4,342.88	36.07	4,343.03	0.00	0.00	0.00	
13,900.00	90.00	179.79	9,102.00	-4,442.88	36.44	4,443.03	0.00	0.00	0.00	
14,000.00	90.00	179.79	9,102.00	-4,542.88	36.81	4,543.03	0.00	0.00	0.00	
14,100.00	90.00	179.79	9,102.00	-4,642.88	37.18	4,643.03	0.00	0.00	0.00	
14,186.22	90.00	179.79	9,102.00	-4,729.10	37.50	4,729.25	0.00	0.00	0.00	
PBHL - TD (CN20S1H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PP (CN20S1H)	0.00	0.00	9,102.00	0.20	20.00	376,452.20	608,689.90	32° 2' 5.139 N	104° 6' 57.518 W	
- hit/miss target										
- Shape										
- Point										
PBHL - TD (CN20S1H)	0.00	0.00	9,102.00	-4,729.10	37.50	371,722.90	608,707.40	32° 1' 18.336 N	104° 6' 57.426 W	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
2,427.00	2,427.00	9 5/8" Casing	9-5/8	12-1/4		
14,186.22	9,102.00	5 1/2" Casing	5-1/2	8-3/4		

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State #1H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3097.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3097.00usft (Original Well Elev)
Site:	Cottonwood North 20 State #1H	North Reference:	Grid
Well:	Cottonwood North 20 State #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
402.00	402.00	Rustler	Anhydrite	0.00	
527.00	527.00	Top of Salt	Salt	0.00	
2,227.00	2,227.00	Btm of Salt	Salt	0.00	
2,407.00	2,407.00	Lamar	LIMESTONE, SHALY	0.00	
2,447.00	2,447.00	Bell Canyon	Sand	0.00	
3,309.86	3,307.00	Cherry Canyon	SAND AND SHALE	0.00	
4,616.12	4,607.00	Brushy Canyon	SAND AND SHALE	0.00	
6,223.83	6,207.00	Bone Spring Lime	LIME AND SHALE	0.00	
7,072.90	7,052.00	1 BS Sand	SAND AND SHALE	0.00	
7,625.55	7,602.00	2 BS Sand	SAND AND SHALE	0.00	
8,769.70	8,737.00	2 BS Sand	SAND AND SHALE	0.00	
9,113.24	9,002.00	Basal 3 BS Sand	Sand	0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,527.00	2,527.00	0.00	0.00	KOP - Build 2*/100'
2,807.68	2,807.23	13.73	0.38	Hold 5.61*
8,500.78	8,473.03	570.40	15.94	KOP - B&T 10*/100'
9,456.89	9,102.00	0.20	20.00	EOC - Hold 90*